

Japan to field test rehabilitation robots

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Credit: CYBERDYNE Inc.

(Phys.org)—Ten hospitals in Japan are set to begin testing the use of a robot known as "Robot Suit HAL" starting next month. The purpose of the test will be to determine whether use of the robot is beneficial to patients needing physical therapy to regain normal use of their legs.

When people experience nerve or muscle damage to their lower backs or legs due to illness, stroke or injury, the normal course of treatment involves undergoing [physical therapy](#). Doing so causes the body to slowly repair the damage that has been done. In order for it to work however, the parts of the body that work properly have to coax the parts that do not into action, a laborious and quite often painful process. For this reason, professional physical therapists assist patients with the process to ensure that all of the body parts are exercised and to offer emotional support. But such experts can only help so much, and for that reason, robots have been developed to help. The thinking is that because they are sensor based and lack emotional involvement in the process, robots are likely to do a better job.

The [Robot](#) Suit HAL (Hybrid Assistive Limb) has been designed and built by Cyberdyne Inc. with assistance from researchers around the country. It's described by its makers as a cyborg-type robot meant to supplement human muscles or to assist in their rehabilitation. Its part handrail, part sensor and part hydraulically controlled machinery. A patient stands between two handrails, holding on, while sensors are affixed to the skin of the legs. The sensors pick up nerve signals which are sent to an onboard computer. Those signals are then converted to action by small motors and power units that cause the muscle to be worked in the same way it would be were the person's body able to move it on their own. The end result is a direct connection between nerve signals and movement, which the researchers believe, will result in faster and perhaps better recovery for the patient.

Initial testing will involve 30 volunteer patients. Representatives for Cyberdyne have also announced that the company is in the process of making arrangements for testing the robot in hospitals in Europe as well.

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